

Weed control systems in glyphosate resistant corn. Brownstown, Illinois, 2004. Simmons, F. William, Douglas J. Maxwell, and Dawn E. Nordby. The objective of this research was to evaluate herbicide programs in glyphosate resistant corn. The study was established at the Brownstown Agronomy Research Center, Brownstown. The soil was a Cisne silt loam with a pH of 6.3 and 1.5% organic matter. Pioneer 33P67 corn was planted 2 inches deep on May 11 in 30 inch rows. Treatments were arranged in randomized complete blocks with three replications of plots 10 by 30 feet. Herbicides were applied with a CO₂ backpack sprayer delivering 20 gpa and equipped with 8003 flat fan nozzles. Application information is listed below:

Date	May 12	June 3	June 9
Application	pre	epost	post
Temperature (F)			
Air	77	75	72
Soil	72	71	70
Soil Moisture	moist	moist	moist
Wind (mph)	12-S	5-SW	7-W
Sky Cover (%)	50	50	100
Precip. after application			
Week 1 (inch)	0.65	0.00	0.89
Week 2 (inch)	1.79	0.90	0.22
Relative humidity (%)	65	60	75
Corn			
Leaf no.	-	3	4
Height (inch)	-	6	8
Giant Foxtail			
Leaf no.	-	2	3
Height (inch)	-	2	3
Common Cocklebur			
Leaf no.	-	1	3
Height (inch)	-	2	3
Common Ragweed			
Leaf no.	-	1	3
Height (inch)	-	2	3
Common Waterhemp			
Leaf no.	-	3	5
Height (inch)	-	1	2

No crop injury was observed from the preemergence treatments. Some minor crop response was observed for the early-postemergence and postemergence applications. Soil-applied treatments containing mesotrione increased control of cocklebur compared to treatments containing atrazine and an acetamide herbicide. KIH-485 provided superior control of broadleaf weeds when combined with atrazine, as compared with s-metolachlor and atrazine. Flufenacet and isoxaflutole combinations did not adequately control cocklebur, however the addition of isoxaflutole to flufenacet and atrazine boosted cocklebur control to acceptable levels. Postemergence applied treatments containing glyphosate and growth regulator herbicides with residual soil activity controlled cocklebur better than those treatments of glyphosate applied alone to existing cocklebur populations. The best total weed control without glyphosate, as rated 9 days after the postemergence treatment, was provided by mesotrione and atrazine following a successful preemergence treatment or early-postemergence treatments containing glyphosate, atrazine, and a growth regulator. (Dept. of Crop Sciences, University of Illinois, Urbana).

Table. Weed control systems in glyphosate resistant corn. Brownstown, Illinois, 2004. (Simmons, Maxwell, and Nordby).

Treatment	Appl Rate (lb/A)	Time	Zeams 6-3 % inj	Setfa 6-3	Xanst 6-3 % control	Ambel 6-3	Amata 6-3	Zeams 6-18 % inj	Setfa 6-18	Xanst 6-18 % control	Ambel 6-18	Amata 6-18
S-meto&atra&meso&benoxacor ¹	1.09+1.09+0.14	pre	0	99	78	99	99	0	98	85	99	99
S-meto&atra&meso&benoxacor ¹ +simazine	1.09+1.09+0.14 1.0	pre	0	99	92	99	99	0	98	95	99	99
S-meto&atra&meso&benoxacor ²	1.67+0.62+0.17	pre	0	99	85	99	99	0	94	78	99	99
S-metolachlor&atrazine&benoxacor	1.26+1.63	pre	0	99	88	98	98	0	98	85	92	98
Metolachlor&atrazine	1.26+1.63	pre	0	92	72	96	93	0	90	67	86	80
Metolachlor&atrazine+isoxaflutole	1.26+1.63+0.047	pre	0	96	88	99	99	0	93	87	99	99
Acetochlor&atrazine&dichlormid +flumetsulam&clopyralid	2.0+1.5 0.034+0.094	pre	0	96	96	99	99	0	98	96	98	97
Acetochlor&atrazine&MON4660 +isoxaflutole	1.57+1.23 0.07	pre	0	99	89	99	99	0	68	84	99	99
Flufenacet&isoxaflutole ³ +atrazine	0.31+0.067+1.0	pre	0	99	88	99	99	0	96	80	99	92
Flufenacet&isoxaflutole	0.446+0.054	pre	0	95	67	96	93	0	96	62	95	91
Flufenacet&isoxaflutole ⁴ +atrazine	0.446+0.054+1.0	pre	0	99	77	99	99	0	98	63	99	99
KIH-485&atrazine	0.15+0.95	pre	0	99	77	99	99	0	99	63	99	99
Acetochlor&atrazine&dichlormid +flumetsulam&clopyralid	1.88+1.4 0.034+0.094	pre epost	0	93	96	99	99	0	92	93	98	99
+Herbimax ⁵ +N-PaK AMS ⁶	1.0%+2.5%											
Acetochlor&atrazine&dichlormid +flumetsulam&clopyralid +atrazine+mesotrione	1.88+1.4 0.034+0.094 0.023+0.25	pre epost	0	96	96	99	98	2	99	92	99	97
+Herbimax+N-PaK AMS	1.0%+2.5%											
Dimethenamid-p&atrazine +dicamba&atrazine+N-Pak AMS	0.85+1.65 0.41+0.79+2.5%	pre	0	96	88	96	98	8	99	88	99	98
Dimethenamid-p&atrazine +dicamba&diflufenzopyr	0.85+1.65 0.125+0.05	pre epost	0	98	88	99	99	3	99	87	99	99
+Activator 90 ⁷ +N-Pak AMS	0.25%+3.67%											
Dimethenamid-p +glyphosate ⁸ +dica&diiflufenzopyr +atrazine	0.56 0.56+0.094+0.037 0.75	pre epost	0	96	50	98	96	3	99	73	99	95
+Activator 90 ⁷ +N-Pak AMS	0.25%+3.67%											
Glyphosate ⁸ +dicamba&diiflufenzopyr +atrazine	0.56+0.094+0.037 0.75	epost	0	-	-	-	-	2	99	98	99	99
+Activator 90 ⁷ +N-Pak AMS	0.25%+3.67%											
Glyphosate ⁹ +dicamba +atrazine+N-Pak AMS	0.56+0.25 0.75+3.67%	epost	0	-	-	-	-	5	98	96	99	99
S-metolachlor&atrazine&benoxacor ⁹ +nicosulfuron&rimisulfuron&atra +mesotrione	0.45+0.58 0.023+0.012+0.75 0.047	pre epost	0	99	88	99	99	0	99	90	99	98
+Herbimax+N-Pak AMS	1.0%+3.67%											
S-metolachlor&atrazine&benoxacor +mesotrione&atrazine +Herbimax+N-Pak AMS	1.55+2.0 0.094+0.50 1.0%+2.5%	pre post	0	98	92	99	99	0	99	99	99	99
Acetochlor&atrazine&dichlormid +glyphosate ¹⁰ +N-Pak AMS	1.13+0.84 0.75+2.5	pre post	0	98	85	95	97	2	98	88	98	98
Isoxaflutole+atrazine +foramsulfuron+iodosulfuron +MSO ¹¹ +28%N	0.07+1.0 0.054+0.04 1.0%+2.5%	pre post	0	98	83	96	99	13	99	90	98	99
S-metolachlor +mesotrione+bromoxynil +Herbimax+28%N	1.59 0.094+0.094 1.0%+2.5%	pre post	0	98	0	73	92	7	98	57	96	97
Check	-	-	0	0	0	0	0	0	0	0	0	0
Acetochlor&atrazine&MON4660 +glyphosate ⁹ +N-Pak AMS	1.06+0.83 0.75+3.67	pre post	0	99	87	99	98	0	99	94	98	98
S-metolachlor&atrazine +glyphosate ⁸ +N-Pak AMS	1.03+0.80 0.75+3.67%	pre post	0	98	78	99	99	0	96	77	96	99
LSD (0.05)			0	5	16	8	5	8	4	17	16	5

¹ Lexar; ² Lumax; ³ Epic Pro; ⁴ USA 2005; ⁵ Herbimax is an oil, emulsifier, and surfactant blend from Loveland Products, Inc; ⁶ N-PaK AMS is an ammonium sulfate solution from Agrilience LLC.; ⁷ Activator 90 is a non-ionic surfactant from Loveland Products, Inc; ⁸ Roundup Weathermax; ⁹ Cinch ATZ; ¹⁰ GF-1279 from DowAgroSciences; ¹¹ MSO is a methylated seed oil and surfactant blend from Loveland Products, Inc.